CLAIMS

1. An electrode for secondary batteries which comprises a first and a second surface both showing electrical conductivity and adapted to be brought into contact with an electrolytic solution and an active material layer containing active material particles positioned between said surface and has no thick conductor for current collection.

2. The electrode according to claim 1, which has a large number of microvoids which are open on at least one of the first surface and the second surface, lead to the active material layer, and allow the electrolytic solution to pass.

3. The electrode according to claim 2, which has a pair of surface layers for current collection inclusive of the first surface and the second surface, respectively, the microvoids being formed in at least one of the surface layers and extending in the thickness direction of the at least one of the surface layers, and the active material layer being positioned between said surface layers.

4. The electrode according to claim 3, which has an electrically conductive material filled in the active material layer over the entire thickness direction thereof to electrically connect the surface layers and exhibits a current collecting function as a whole.

5. The electrode according to claim 3, wherein the surface layers each have a thickness of 0.3 to 20 μm.

6. The electrode according to claim 1, wherein the active material particles are particles of a hydrogen storage alloy.

7. The electrode according to claim 1, wherein the active material layer is formed by applying an electrically conductive slurry containing the active material particles.

8. The electrode according to claim 3, wherein the surface layers are formed by electroplating.

9. The electrode according to claim 1, which has a total thickness of 1 to 500 μm.

10. The electrode according to claim 1, which is an anode for a nonaqueous secondary battery and which comprises a pair of surface layers for current collection each having a surface that is adapted to be brought into contact with a nonaqueous electrolytic solution and at least one active material layer which is disposed between the surface layers and contains particles of an active material having high capability of forming a lithium compound,

at least one of the surface layers having a large number of microvoids extending in the thickness direction thereof and allowing the nonaqueous electrolytic solution to pass, and

a material which has low capability of forming a lithium compound being filled between the particle formed in the at least one active material layer and being different from at least one of the material constituting one of the surface layers .

11. The electrode according to claim 10, wherein at least one of the surface layers has a multilayer structure composed of at least two sublayers different in material, and at least one of the materials constituting sublayers is different from said material having low capability of forming a lithium compound and filled in the at least one active material layer .

12. A process of producing an electrode for secondary batteries comprising the steps of:

preparing a carrier foil having a release layer on a side thereof,

applying an electrically conductive slurry containing active material particles to a release layer formed on a carrier foil to form an active material layer,

plating the active material layer formed on the carrier foil with a metal by electrodeposition in a plating bath containing the metal to form an electrode containing the active material layer, and

peeling the electrode off the carrier foil at the release layer.

13. An electrode for secondary batteries which comprised a first and a second surface both showing electrical conductivity and adapted to be brought into contact with an electrolytic solution an active material layer containing active material particles

positioned between said first surface and said second surface, and an electrically conductive foil in the middle of the thickness direction thereof, wherein the active material layer is present on both sides of the conductive foil.

14. The electrode according to claim 13, which has a total thickness of 1 to 600 μm.

15. The electrode according to claim 13, wherein

the active material layer formed on each side of the conductive foil contains an element having high capability of forming a lithium compound, and

a metallic lithium layer is provided between the conductive foil and the active material layer on at least one side of the conductive foil.

16. A secondary battery having the electrode according to claim 1 as a cathode or an anode.

17. A secondary battery having the electrode according to claim 13 as a cathode or an anode.